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Prevalence and Predictors of Self-Medication in the Younger Elderly of Ahvaz based on Protection Motivation Theory

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1. Abstract

Background: The use of medicines is one of the main parts of the treatment of diseases. However, self-medication can be fol- lowed several complications. The aim of this study was determine the prevalence and factors influencing self-medication based on protection motivation theory (PMT).

Methods: A cross-sectional study was conducted among 385 younger elderly in the city of Ahvaz, province Khuzestan, Iran. Participants which was randomly selected with the proportionalto size among different health centers at Ahvaz for participationin this study. A structured questionnaire was applied for collectingdata and data were analyzed by SPSS version 21 using bivariate correlations and logistic regression statistical tests.

Results: The mean age of respondents was 65.94 years [95% CI: 65.52, 66.36], ranged from 60 to 74 years. Almost 46.2% of the participants had self-medication at last month. Higher edu- cation and lover economic status were the best background pre- dictive factors on self-medication. Among PMT constructs, the best predictor for self-medication was susceptibility, severity and self-efficacy.

Conclusion: Based on our result, it seems that implementa- tion of interventional programs to increase self-efficacy and side effect of self-medication might be helpfulness of the results in or- der to avoid of self-medication.

2. Introduction

The use of medicines is one of the main parts of the treatment of diseases. However, self-medication, in addition to failure in treat- ment of the disease, results in side effects [1]. The social view of medicines is just related to its aspects of healing and safety while the self-medication results in some complications [2]. On the other hand, people usually tend to care for themselves and sometimes this results in self-medication [3]. Self-medication is different from self-care and it is a behavior in which the individual, without the help and guidance of professional individuals, tries to resolve his/disease or health problem by using medicines not prescribed by a physician. Researchers define self-medication as using a pro- duced material, including herbal or synthetic drugs, for treatment of a disease, disease symptoms, and prevention of a disease and improvement of health without the prescription of a specialist [4]. Self-medication can be through a synthetic or a handmade drug, access drugs not prescribed by a specialist, use of previously-pre- scribed drugs in similar cases, distributing the drugs prescribed for an individual among family members and friends and the use

of extra medications remained at home [5]. In facing the feeling of illness, the society chooses some ways for being relived from the problem which are called treatment-seeking behavior. This behavior includes the lack of attention to the illness and action for treatment by visiting medical service providers and it results in self-medication [6, 7]. Currently self-medication is a major problem in the treatment process in Iran and may other countries. Self-medication has resulted in resistance of bacteria, lack of optimal treatment, unintentional poisoning, side effects and complications, disturbance in medicine market, waste of money and the increase of pharmaceutical expenditure per capita in the society. Self-medication is one of the major health social issues that can create significant problems for the individual and the society. The efforts made for correcting this problem has not been successful much and the medical system of Iran still faces the inappropriate act of self-medication [8]. Meanwhile, one of the groups in the society that due to more affliction with diseases may self-medicate is the elderly. Biochemical, physiological and pharmacokinetic changes in the elderly results in inappropriate or too much consumption of medicines [9]. This highlights the importance of paying attention to self-medication, with the constant increase of over the counter drugs, in this age group which, according to the existing statistics, is growing fast [10]. Old age is considered as a sensitive period in human life and paying attention to the problems and the requirements of this period is a social necessity. Paying attention to self-medication in the elderly needs a special attention as this group is more at risk, compared with other age groups [11, 12]. Incidence of multiple diseases in the elderly makes them consume more medication, compared with the young adults and those in their mid-life, and thus they become more afflicted with medicine-related complications [10]. This issue shows the necessity of doing preventive interventions. Also, it should be noted that human behavior is a reflection of different factors and plays a significant role in prevention, control and treatment and rehabilitation of health-related problems and using behavior analysis theories can be useful in the identification of factors impacting the issue [13-15]. Also, many studies have pointed out epidemiological studies as the first step in designing appropriate interventions [16-18]. In training the adults including younger elderly the training should be in a self-directed form which means that the training should be designed in a way that the individual is encouraged to do the behavior by assessment of the obstacles and advantages of the behavior. Some studies suggest that interventions should have a motivational component [19-21]. Protection Motivation Theory was introduced by Rogers in 1975 and was soon employed as a framework for prediction of and intervention in health-related behaviors. This theory was basically developed to describe the effects of creating fear on health behaviors and attitudes. A communication due to fear has a significant effect on choosing behaviors. Threat appraisal evaluates maladaptive responses. Threat apprais-

al process includes internal and external reward and threat understanding (susceptibility and threat). Coping appraisal process evaluates the coping ability and repelling the threated risk or adaptive responses. Coping appraisal process factors include effectiveness of response, self-efficacy and response costs [21]. Therefore, the present study was conducted with the aim of determining the prevalence and predictors of self-medication in younger elderly of the city Ahvaz based on Protection Motivation Theory.

3. Methods

This study was a descriptive analytical study using cross-sectional method which was conducted in the spring 2016 on 385 younger elderly individuals (mean and women ages 60-74) in the city of Ahvaz, province Khuzestan, Iran. For sampling, first the health centers of Ahvaz were considered as clusters and, using simple random sample and with probability proportional to size, the participants were selected in each cluster. Then, the participants were given the designed questionnaires and their information were collected with interview. The participants were given explanations on the way the study is conducted, the aim of the study and the confidentiality of the information and they entered the study willingly. After eliminating the incomplete questionnaires, 342 questionnaires were analyzed (the response rate in the present study was 88 percent).

The data collection tool in the present study was questionnaire which included two sections and the information was collected from the participants using interview. The first part of the questionnaire was dedicated to background information and some information regarding self-medication and things such as age (years), sex (male, female), education level (illiterate, primary, middle school, diploma, academic education), having medical insurance (yes, no), and self-medication during the past month (yes, no) were measured.

The second section was consisted of protection motivation theory in seven parts. The research team designed the aforementioned questionnaires in the form of questionnaires with five-point scale (very low, low, to some extent, high, much, very much) using the studies conducted with Protection Motivation Theory [19-21] and a qualitative study. In order to measure the reliability of the questionnaires, a pilot study was conducted on 30 of the participants and the reliability of the study was verified using Cronbach's alpha. Also, the content validity was verified by a group of experts including an internist, a medical education and health improvement specialist, a pharmacist and an elderly health specialist.

Perceived susceptibility of a threatened about self-medication, this questionnaire was consisted of five items. For example, "self-medication results in physical complications in my body". The higher scores indicated higher perceived susceptibility to the risk of complications due to self-medication. The Cronbach's Alpha for the perceived susceptibility of the threat self-medication questionnaire

was obtained as 0.84.

Perceived severity of a threatened about self-medication, this questionnaire had eight items. For example, "self-medication leads to my death". Higher scores indicated higher perceived severity of the threat of self-medication. The Cronbach's alpha for this questionnaire was obtained as equal to 0.86.

Perceived response costs of a threatened about self-medication, this questionnaire had four items. For example, "if I don't self-medicate, I should continuously refer to the medical system". Higher scores indicated more perceived obstacles in self-medication. The Cronbach's alpha for this questionnaire was obtained as equal to 0.81.

Perceived response efficacy about lack self-medication, this questionnaire had eight items. For example "medications through visiting a physician and receiving a prescription results in reduction of side effects in me". Higher scores indicated more perceived advantages of the lack of self-medication. The Cronbach's alpha for this questionnaire was obtained as equal to 0.82.

Perceived self-efficacy about lack self-medication, this questionnaire had five items. For example, "I can visit a physician for preventing self-medication even if my time is wasted". Higher scores indicated more self-efficacy in the lack of self-medication. The Cronbach's alpha for this questionnaire was obtained as equal to 0.88.

Perceived rewards about self-medication, this questionnaire had five items. For example, "If I self-medication, I pay less money".

The Cronbach's alpha for this questionnaire was obtained as equal to 0.89.

Perceived fear about self-medication, this questionnaire had four items. For example, "I am concerned about being afflicted with the complications of self-medication". Higher scores indicated more fear of self-medication. The Cronbach's alpha for perceived fear of self-medication questionnaire was obtained as equal to 0.85.

Data were analyzed by SPSS version 16 using appropriate statistical tests including bivariate correlations and logistic regression at 95% significant level.

4. Results

The mean age of respondents was 65.94 years [95% CI: 65.52, 66.36], ranged from 60 to 74 years. More details of demographic characteristics of the participants are shown in Table 1. Almost 46.2% of the participants had self-medication in the last month.

Logistic regression analysis was calculated for predictability of variables of PMT and background variables on self-medication (Table 3 and 4).

As mentioned in statistical analyses, a step-wise model building procedure was conducted and finally on 7rd step the procedure stopped and the best model was selected, among the background variables: higher education and lover economic status of predictive factors were self-medication (Table 3). Finally, a step-wise model building procedure was conducted and on 5rd step the procedure stopped and the best model was selected, among the protection motivation theory constructs: susceptibility, severity and self-efficacy the more influential predictor on self-medication (Table 4).

Table 1: Distribution of the demographic characteristics among the participants.

Variables	Number	Percent
Age group (year)		
60-65	177	51.5
66-70	111	32.3
71-75	56	16.3
Sex		
Male	119	34.6
Female	225	65.4
Education level		
Illiterate	66	19.2
Primary school	163	47.4
Secondary school	51	14.8
High school	54	15.7
Academic	7	2
Missing	3	0.9
Marital Status		
Single	21	6.1
Married	252	73.3
Widow	70	20.3
Missing	1	0.3
Insurance		
Yes	300	87.2
No	44	12.8
Economic Status		
Very Weak	14	4.1
Weak	57	16.6
Average	163	47.4
Good	101	29.4
Very Good	8	2.3
Missing	1	0.3

Table 2 shows the Zero-order correlations. Significance levels at the 0.01 and 0.05 were the criteria for the analysis of protection motivation theory constructs.

Component	X1	X2	X3	X4	X5	X6
X1. Susceptibility	1					
X2. Severity	0.487**	1				
X3. Response Costs	-0.032	-.042	1			
X4. Response Efficacy	0.108*	0.330**	-0.117*	1		
X5. Self-Efficacy	0.268**	0.399**	-0.216**	0.545**	1	
X6. Rewards	-0.060	-0.203**	0.140**	-0.245**	-0.254**	1
X7. Fear	0.218**	0.363**	-.177**	.471**	0.595**	-.246**

Table 3: The correlation between background variables and self-medication using logistic regression analyze.

Variable	β	SE(β)	Wald	P-value	OR	Lower	Upper
Education	0.297	0.112	7.052	0.008	1.346	1.081	1.676
Economic Level	-0.523	0.14	14.041	0.001	0.593	0.451	0.779

Table 4: The correlation between different components of protection motivation theory and self-medication using logistic regression analyze.

Upper	Lower	OR	P-value	Wald	SE(β)	β	Variable
1.676	1.081	1.346	0.008	7.052	0.112	0.297	Education
0.779	0.451	0.593	0.001	14.041	0.14	-0.523	Economic Level

5. Discussion

The findings of the present study indicated that the prevalence of self-medication among the elderly explored was 46.2 percent. In line with this, Karimi et al. [9] have reported the prevalence of self-medication among the elderly to be 31 percent. Sharifirad et al have reported a 77.6 percent of self-medication prevalence in the elderly. Also, Davati et al [10] have reported the prevalence of self-medication among the elderly in Tehran as 57.7 percent. Papakosta et al [3] indicated that 54.7 percent of the individuals in rural Greece self-medicate and these individuals assess their health lower, compared with others. Furthermore, Balbuena et al [12], in their study among the Mexican elderly, indicated that 53.9 percent of the elderly women and 52.7 percent of the elderly men do self-medication. Bijani et al. [11], in their study on the elderly population, showed that on average men consume 2.1 and women 3.59 types of drugs. In 16.5 percent of the men and 35.12 percent of the women there was a consumption of more than four types of drugs in a day which can make the probability of self-medication high and the importance of educating the elderly in this regard is felt.

Another notable result of the study was higher chances of self-medication among those with higher educations. These findings highly consistent with the findings of other studies Tajik (5) and Figueiras [22] showed in their studies that self-medication has been increased with the increase of education level. Maybe higher level of education and more familiarity with possible (positive) effects has paved the way for more inclination towards self-medication. Con-

sidering the results, the necessity of providing behavioral interventions, especially for those with higher levels of education, is felt. Also, economic condition was one of the predictors of self-medication in a way that the probability of self-medication was higher in those with lower economic status. In this regard, the findings of some studies have shown that self-medication has been less in individuals with average financial status [23].

In addition, regression analysis showed that the constructs perceived susceptibility, severity and self-efficacy from Protection Motivation Theory were stronger predictors for self-medication. In this regard, many studies emphasized that individuals' perceived susceptibility and intensity to being at risk of a specific disease or being afflicted with the complications of an inappropriate health-related behavior on one hand, and serious perception of the danger of the issue on the other hand impact adopting preventive behaviors [24, 25]. The individuals who consider themselves more susceptible to the risks related to the behaviors that damage the health and have more perceived susceptibility to the dangers around them feel a need for adopting preventive behaviors more. On the other hand, the lack of susceptibility describes the individual's perception of the belief that "I am less at risk of the complications" and this believe weakness the adoption of preventive behavior. Our findings indicate that if the perceived susceptibility of the possibility of affliction with complications and also the perceived intensity of the seriousness and dangers of self-medication are emphasized in designing educational interventions, it can be

expected that these measures result in the reduction of self-medication. In this regard, the increase of general information of people in the society by different institutions and organizations using appropriate communication channels can be helpful in improving the perception of the possibility of affliction with complications resulted from self-medication.

Another finding of the present study was the strong role of self-efficacy in the prediction of self-medication in the participants. On this issue, Bandura believes that self-efficacy is an assurance that the individual feels about doing a specific activity and it means the individual's judgement of his/her abilities for doing an action. And it can enable the individual to adopt health-improving behaviors and quitting health-damaging behaviors. The individuals who have higher levels of self-efficacy pass obstacles by improving self-management skills and perseverance and have more control over and resistance against problems. Thus, self-efficacy perception can lead to maintaining health-improving behaviors [26]. The findings of the present study indicate the important role of self-efficacy in predicting self-medication.

The limitations of this study include collection of data through questionnaire (which has the possibility of the lack of sincere cooperation by individuals) and the problems related to collection of data from the elderly.

6. Conclusion

Considering the relationship between high perceived self-efficacy, susceptibility and severity of self-medication, it is recommended to design and implement a program on familiarity with the serious dangers of self-medication (for creating fear and increasing perceived risk of self-medication) and increase of the elderly's self-efficacy in reviving medications through a physician's prescription.

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